The Baudhayana-Pythagoras Question

Vedic Credit and Jaina Silence in the Story of Indian Mathematics

A Note on This Book

This short book began as a single chapter inside a larger investigation into how India's national curriculum tells the story of its own ancient past — specifically, a book examining the 2024 NCERT rebranding of the Indus Valley Civilisation as the "Sindhu-Sarasvatī" Civilisation. That larger project is about archaeology, hydrology, and comparative linguistics. This one is about mathematics — but it turned out to be asking the same question in a different room: not whether a claim is true, but which claims a national retelling of ancient Indian genius chooses to amplify, and which ones it quietly lets go unmentioned.

It stands on its own here. No familiarity with the larger project is assumed.

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Every so often, a claim circulates in Indian classrooms, science exhibitions, and social media threads that the theorem the world knows by a Greek philosopher's name was actually stated first, centuries earlier, by an Indian sage named Baudhayana. This claim is not folklore. The Baudhayana Shulba Sutra, a ritual manual for constructing Vedic fire altars composed roughly around 800 BCE, contains a general geometric rule — that the diagonal of a rectangle produces a square whose area equals the sum of the squares on the two sides — stated clearly enough, and applied practically enough in the altar-construction instructions that follow it, that historians of mathematics do not dispute the priority claim in outline. Pythagoras, by the most common dating, lived roughly 570–495 BCE, two to three centuries after the Shulba Sutra's likely composition. Calling the result the "Baudhayana theorem" rather than, or alongside, the Pythagorean theorem is not a nationalist exaggeration. It is a reasonably defensible correction to a Eurocentric naming convention, and this book is not here to dispute it.

What this book is here to examine is a pattern, not a single claim: which ancient Indian mathematicians get remembered, retold, and celebrated in exactly this way, and which do not — and whether that selection tracks anything other than the underlying mathematics itself.

Baudhayana belongs to a well-known lineage that Indian popular science writing, museum placards, government commemorations, and school-level enrichment material return to reliably: Vedic and Vedic-adjacent figures — Baudhayana and the other Shulba Sutra authors, Aryabhata, Brahmagupta, Varahamihira, Bhaskara I and II — each with a stable, frequently repeated story (Aryabhata and the zero, Brahmagupta and negative numbers, Bhaskara and early calculus-adjacent ideas) that circulates well beyond specialist history-of-mathematics circles into general civic pride. This is not, in itself, a problem. These are real mathematicians who did real, often extraordinary work, and a country taking pride in that work is unremarkable.

The problem is what sits just outside the frame of that story, largely unmentioned in the same textbooks, the same museum placards, and the same popular retellings — despite working in the same broad tradition, in some cases in the very same royal courts, within decades of the more famous names.

Acharya Virasena, a Digambara Jain monk who lived roughly 792–853 CE in the Deccan under the patronage of the Rashtrakuta king Amoghavarsha, completed in 816 CE a mathematical commentary called the Dhavala, on the Jain canonical text Shatkhandagama. In it, Virasena develops and names the concept of *ardhaccheda* — the number of times a quantity can be halved — which is, in substance, a base-2 logarithm, worked out with its governing

laws centuries before John Napier's 17th-century treatise is conventionally credited, in most general histories of mathematics, as the origin of logarithmic thinking. Virasena went further, working out logarithms in base 3 (*trakacheda*) and base 4 (*caturthacheda*) as well, derived the volume of a conical frustum using an early infinite-series procedure, and offered an approximation for pi — roughly 3.14159292 — measurably more precise than the value commonly attributed to Aryabhata's own treatise. None of this is obscure or contested among historians of Indian mathematics; it appears in standard references on the subject. It is simply, overwhelmingly, absent from the general-audience version of "India's ancient mathematical genius" that gets retold in classrooms and popular media.

Jinasena, Virasena's direct disciple, completed the Dhavala after his teacher's death and went on to author the Adipurana, part of the Mahapurana — continuing the same Rashtrakuta-court tradition of Jain scholarship that had produced his teacher's mathematics. And Mahaviracharya, writing a generation later at the same Rashtrakuta court under the same King Amoghavarsha, composed in 850 CE the Ganita Sara Sangraha — the earliest Indian text devoted entirely to mathematics as a subject in its own right, rather than as a chapter embedded within an astronomical treatise, as most earlier Sanskrit mathematical writing had been. Mahaviracharya systematized fractions, permutations and combinations, and quadratic problem-solving, established still-used geometric terminology for figures like the rhombus and isosceles triangle, and explicitly credited the Jain mathematical lineage he was building on in his own introduction. His work was influential enough to be translated into Telugu within roughly two centuries and to shape mathematical instruction across the south for generations. He is, by any ordinary measure of historical significance, at least as important a figure in the history of Indian mathematics as several names that appear far more often in general retellings.

What makes this pattern worth a book, rather than a footnote of grievance, is the specific historical irony sitting underneath it: Virasena, Jinasena, and Mahaviracharya were not marginal, geographically scattered figures whose obscurity might be explained by isolation from the mainstream of classical Indian scholarship. They worked, across three overlapping generations, at the same royal court — the Rashtrakuta court at Manyakheta, under a dynasty whose most celebrated ruler, Amoghavarsha, is recorded as having personally engaged with Jain scholarship and, by several traditional accounts, spent part of his later life in Jain monastic retreat. This was not a fringe tradition operating in the shadow of a Vedic mainstream; it was, for a concentrated and well-documented span of the 8th and 9th centuries, a state-patronized center of mathematical scholarship in its own right, producing work that in the specific case of logarithms and infinite series predates comparable European developments by the better part of a millennium.

None of this is difficult to find. It sits in the same standard reference works — the MacTutor History of Mathematics archive, peer-reviewed papers on the history of Indian science, dedicated Jain studies journals — that supply the Aryabhata and Brahmagupta material used in general textbooks. The information asymmetry is not a shortage of scholarship. It is a shortage of retelling: a default reflex, when the question “who discovered this in ancient India” comes up, to reach first and almost exclusively for a Vedic or Puranic-affiliated name, and to leave Buddhist, Jain, and other traditions’ comparably significant contributions in the specialist literature rather than the general one.

This is a historiographical habit worth naming plainly. A curriculum that collapses a genuine, evidenced plurality into a single, more comfortable continuity narrative does not have to deny that Virasena or Mahaviracharya existed. It simply keeps the spotlight trained on one strand of a demonstrably pluralistic intellectual history, generation after generation, until “ancient Indian mathematics” starts to sound, in the popular imagination, like a story with only Vedic and Puranic characters in it — a story India’s actual historical record does not support.

For a country whose modern constitution explicitly protects religious pluralism, and whose population still includes millions of Jains, Buddhists, and other communities whose ancestors were not incidental bystanders to Indian civilisation but among its most sophisticated builders, that quiet narrowing matters beyond the history-of-mathematics seminar room. A curriculum that keeps defaulting to a single civilisational strand as the answer to “who were the ancient Indian geniuses” teaches, by omission, a subtly exclusionary answer to a much larger and more consequential question: who gets to count, in the story a nation tells its children, as a full author of that nation’s greatness. Correcting Pythagoras’s name to include Baudhayana’s was the easy part of that reckoning, because it flattered a story India already wanted to tell about itself. Making room for Virasena, Jinasena, and Mahaviracharya in the same sentence is the harder part, because it asks the story to become more crowded, more plural, and less tidy than the version currently being taught — which is, this book would argue, the more accurate version, and the only one a genuinely diverse country can afford to keep telling itself.

Further Reading

- A. N. Singh, “Mathematics of Dhavala,” Lucknow University — the standard technical treatment of Virasena’s logarithmic and series work.
- V. Mishra and S. L. Singh, “First Degree Indeterminate Analysis in Ancient India and its Application by Virasena,” *Indian Journal of History of Science*, 32(2), 1997.
- M. Rangacharya (trans.), *The Gaṇita-Sāra-Saṅgraha of Mahāvīrācārya*, Government of Madras, 1912 — the standard English translation, with an introduction situating Mahaviracharya’s work in the broader history of mathematics.
- The MacTutor History of Mathematics archive (University of St Andrews) entries on Virasena and Mahāvīra — accessible starting points with further citations.